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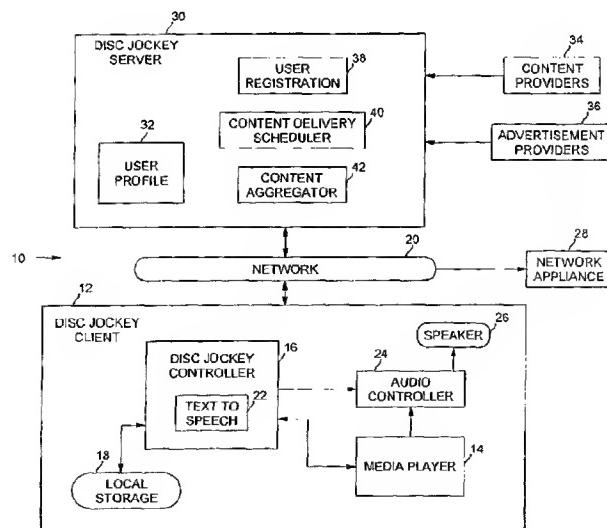
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(54) Title: PERSONALIZED DISC JOCKEY SYSTEM



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(57) Abstract: Automated insertion of personalized information content between segments of an audio program. The information may be based on user preferences and unique for the individual user. When a user is listening to a series of digital audio files being rendered by an audio player application according to a play list or in a streaming manner, the user may also receive other information based on the user's interests. The additional information may be rendered for the user in between the digital audio files (e.g., in between songs) or even as a "voice over" during a song. The additional information may be individually customized for the user based on a user-controlled profile or selected criteria. In one embodiment, the information may be obtained from various web sites on the internet based on the profile. If the additional information is received in a textual format (e.g., ASCII), the text may be converted into speech for audible rendering to the user.



*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

**Personalized Disc Jockey System**

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**BACKGROUND****1. FIELD**

10 The present invention relates generally to computer software applications and, more specifically, to digital audio player applications.

**2. DESCRIPTION**

15 The use of media player applications for personal computers (PCs) and other digital devices has become widespread. Many different player applications are offered by software developers. The player applications are typically available for download from a network such as the Internet, often at no cost. One widely used player application is an audio player that renders digital audio files for listening by a user. Several different digital audio data formats are in common  
20 use, with the most common being the Motion Picture Expert Group (MPEG) audio layer 3 or "MP3" format. When digital audio data is stored in a file in the well-known MP3 format, the file may be easily moved, copied, transferred, or rendered by operating system or player application software.

25 Users are experienced in using audio player applications to build play lists of their favorite music. Play lists are a feature of many of the available audio player applications. A user typically constructs a play list of multiple audio files obtained from a variety of sources. When the audio player application is operating according to a play list, the user may enjoy a successive stream of songs listed in the play list. However, once the user initiates operation of the audio player  
30 according to the play list, manual intervention by the user via a user interface to interrupt the play list is needed in order to use the audio capabilities of the PC or other device for other purposes.

Internet radio is a recent application whereby individual digital audio files are streamed to users on client systems. A "radio program" via the Internet is a

sequence of audio files (e.g., songs) that may be broadcast to all users, or narrowcast to a selected group of users. However, with Internet radio there is no way for an individual user to select other information to be interleaved with the songs, nor can the individual user specify all of the streaming content.

- 5        Thus, there are opportunities for providing additional capabilities in digital audio applications that overcome these and other disadvantages of the prior art.

#### BRIEF DESCRIPTION OF THE DRAWINGS

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The features and advantages of the present invention will become apparent from the following detailed description of the present invention in which:

15        Figure 1 is a diagram of a personalized disc jockey system according to an embodiment of the present invention;

Figure 2 is a flow diagram illustrating processing of a personalized disc jockey system according to an embodiment of the present invention;

Figures 3 through 6 are example user interface diagrams according to an embodiment of the present invention; and

20        Figure 7 is a diagram illustrating an example processing system for operating as a client or a server in a personalized disc jockey system according to an embodiment of the present invention.

#### 25        DETAILED DESCRIPTION

An embodiment of the present invention is a method and apparatus for providing personalized disc jockey services to a user over a network. The present invention provides for the automated insertion of personalized information content 30 between segments of an audio program. The information may be based on user preferences and unique for the individual user. According to the present invention, when a user is listening to a series of digital audio files being rendered by an

audio player application according to a play list or in a streaming manner, the user may also receive other information. The additional information may be rendered for the user in between the digital audio files (e.g., in between songs) or even as a "voice over" during a song. The additional information may be individually 5 customized for the user based on a user-controlled profile or selected criteria. If the additional information is received in a textual format (e.g., ASCII), the text may be converted into speech for audible rendering to the user.

For example, a user may be executing an audio player application to play either locally stored digital audio files (e.g., files in MP3 or another audio format) 10 or other streaming digital audio files (as in an Internet radio application). In embodiments of the present invention, the system announces selected information to the user in between songs or as a voice-over during a song. The information may be any information selected by the user according to specified criteria that is accessible either locally or remotely (e.g., from a network, an 15 intranet, the Internet, or a web site). The information may be rendered for the user at a specific time or frequency, or as a result of the occurrence of a selected event. In various embodiments, the information may comprise the current time, song information (title, artist, album title, running length, record company name, producer, etc., some of which may be obtained from song file tags), sports scores, 20 current news headlines, stock quotes, weather reports, traffic reports, new electronic mail (e-mail) message headers arriving at the user's mailbox, appointment reminders for upcoming appointments, a joke of the day, horoscope information, instant messages (IM), auction web site bidding information, television reminders, concert tour information, and so on. When the information 25 comprises e-mail message details (e.g., sender, subject line, etc.) or appointment reminders, the data may be obtained from the user's mail program (such as Outlook, available from Microsoft Corporation, for example). Embodiments of the present invention may have particular application to selected information that is dynamic in nature and that may be obtained from a web site over the Internet. 30 That is, information that is transitory or changing with events (such as the time, the weather, the current news items, current stock prices, etc.). This list contains examples of the types of information to be rendered to the user according to a

user profile or user selected criteria and is not intended to be comprehensive or limit the scope of the invention. Other information may also be rendered between songs or as voice overs.

Reference in the specification to "one embodiment" or "an embodiment" of  
5 the present invention means that a particular feature, structure or characteristic described in connection with the embodiment is included in at least one embodiment of the present invention. Thus, the appearances of the phrase "in one embodiment" appearing in various places throughout the specification are not necessarily all referring to the same embodiment.

10 Figure 1 is a diagram of a personalized disc jockey system 10 according to an embodiment of the present invention. A disc jockey client 12 comprises a processing system for executing at least two application programs. The application programs may comprise a program for rendering digital content. Generally, the digital content may be any multimedia content in a digital form,  
15 such as audio, video, images, text, music, movies, books, or other data. In one embodiment, the content is audio data (e.g., music). In one embodiment, the disc jockey client comprises at least one of a PC, an Internet or network appliance, a set-top box, a handheld computer, a personal digital assistant, a personal and portable audio device, a cellular telephone, or other processing device. The  
20 application programs being executed on the disc jockey client comprise a media player 14 and a disc jockey controller 16. Media player 14 may be an application for rendering digital content for a user. In one embodiment, media player may be an audio player such as Windows Media Player (available from Microsoft Corporation), RealPlayer (available from RealNetworks, Inc.), or WinAmp  
25 (available from NullSoft Corporation), for example. In another embodiment, media player may be an application program or software plug-in that supports reception and rendering of Internet radio streams. In another embodiment, the functionality of the media player may be included in a browser program (such as Internet Explorer from Microsoft Corporation or Netscape Navigator (not shown)).

30 Disc jockey controller 16 comprises a control module to interact with the media player in providing personalized content for the user. In one embodiment, the disc jockey controller may be a plug-in for the media player. In one

embodiment, the disc jockey controller may comprise a dynamic link library (DLL) file in the Microsoft Windows operating system environment. The disc jockey controller manages the digital content to be rendered by the media player, including obtaining local and remotely accessed content. Content may be

5 obtained from local storage 18 or remotely from servers coupled to a network 20. Network 20 may be any network or series of interconnected networks capable of transporting digital content. For example, network 20 may be a local area network (LAN), a wide area network (WAN), the Internet, a terrestrial broadcast network such as a satellite communications network, or a wireless network.

10 The disc jockey controller may include a text to speech converter function 22. For any content that is obtained in a textual format, the text to speech converter function may convert the text into audio data recognizable as speech when rendered according to well-known methods. Such data may be sent to audio controller 24 for rendering on one or more speakers 26. In one

15 embodiment, the text to speech converter operates on data according to a speech application programming interface (SAPI). In other embodiments, the text to speech converter function may be located on the disc jockey server and the converted audio data may be sent over the network to the disc jockey client.

In one embodiment, the audio controller may comprise or be coupled to an

20 audio device driver or a sound card. Media player 14 also sends content as audio data to audio controller 24 for rendering audibly for the user (e.g., playing MP3 files as music). In some embodiments, the audio data may be forwarded via a network 20 to a network appliance 28. The network appliance in some embodiments may be a consumer electronics device such as a receiver or an

25 amplifier (e.g., a home stereo), for example, coupled to one or more loudspeakers. In one embodiment, the disc jockey client may be coupled to the network appliance by a home network.

In the present invention, there are at least four types of operations that may be supported for conveying personalized information to a user interleaved with

30 digital audio file rendering. In the first type of operation, the personalized content, and the digital audio content are stored locally on or otherwise obtained locally from the disc jockey client. The digital audio content (e.g., the music) may be

stored in local storage 18. For example, a user may have converted tracks from multiple compact discs (CDs) in the user's music collection from CD format to MP3 format (or other suitable digital audio format) and stored the MP3 files in the local storage along with a play list. In another example, a user may obtain a 5 digital audio file from another source and store it in local storage. In addition, the personalized information may be obtained from disc jockey client system characteristics (e.g., current system time) or from locally stored ("canned") information. In this case, all data for rendering may be obtained from within the disc jockey client system. When the media player operates on the play list, the 10 player obtains the song files from the local storage. The disc jockey controller also obtains the personalized information from the local storage.

In the second type of operation, the digital audio content may be stored locally as discussed above, but the personalized information may be obtained from an external or remote source over a network. For example, the information 15 may be obtained in a well-known manner from a web site on the Internet. In one embodiment as shown in Figure 1, a disc jockey server 30 may accept requests from disc jockey client 12, and, more particularly, from disc jockey controller 16, for information to present to the user in between rendering of the digital audio content according to a user profile 32. The user profile is shown in Figure 1 as 20 being located at the disc jockey server, however, in other embodiments, the user profile may be stored locally on the disc jockey client. In one embodiment, the disc jockey server may operate a web site for the purpose of registering a user, setting up a user profile, accepting content from content providers 34 and advertising providers 36, accepting requests for information, and delivering the 25 requested information according to the profile to the disc jockey client. The user, via the disc jockey client, may set up the user's profile using user registration function 38. The user registration function may obtain personal or demographic information from the user in setting up the user's profile. One or more content providers 34 and one or more advertising providers 36 may provide information to 30 the disc jockey server for communication to the disc jockey client depending on the particular embodiment used. In some embodiments, advertisements or other content may be sent to the disc jockey client according to parameters of the user

profile. In other embodiments, content providers or advertising providers may be omitted.

Content delivery scheduler function 40 may determine when personalized information is to be delivered to the disc jockey client according to the user profile.

- 5 Content aggregator function 42 may aggregate the various segments of personalized information from various sources (e.g., content providers, advertising providers) for communication to the disc jockey client and subsequent rendering to a user. Each of these functions may be combined with disc jockey server 30 or may be distributed among several servers coupled to the network.
- 10 In the second type of operation, it is evident that personalized content may be obtained from many different sources on the Internet. For example, particular news and sports information of interest to the user as specified in the user profile may be obtained from one web site (e.g., Cable News Network (CNN), other television broadcasting network web sites), weather information may be obtained
- 15 for a different web site (e.g., Accuweather), stock quotes may be obtained from another web site (e.g., CNN Financial News (CNFN)), and so on.

- In the third type of operation, the personalized information may be stored locally, but the digital audio content may be obtained from a remote source (e.g., the Internet or an intranet). This type of operation may be used in conjunction
- 20 with an Internet radio application where a web site streams audio data to the disc jockey client and the client obtains the personalized information from local storage 18 for rendering in between the streamed songs. Typically, when running an Internet radio application, a pause occurs in between streamed songs. For this application, the disc jockey client inserts the personalized information at the
  - 25 pause, so the user hears a continuous sequence of music, personalized information, and then music again.

- Finally, in the fourth type of operation, the personalized information may be obtained from at least one remote source such as web sites on the Internet or an intranet, and the digital audio content may also obtained from the same or other remote sources. In this case, all data to be rendered may be obtained remotely according to the functions discussed above.

Figure 2 is a flow diagram illustrating processing of a personalized disc jockey system according to an embodiment of the present invention. At block 100, the user (via the disc jockey client) chooses the types of information to be received and the frequency of delivery. For example, a user might choose to 5 receive an indication of the current time every half hour, the current price per share of Intel Corporation stock every hour or when the price changes by a selected percentage or dollar amount, and the general news headlines every four hours. Generally, the user sets up the user profile to define what information is to be received and when the information is to be received according to user 10 preferences. At block 102, the user selects a play list. Prior to selection of a play list, the user initiates execution of the media player 14 and/or the disc jockey controller 16, depending on the particular implementation. Selection of the play list may occur through the user interface of the media player 14. At block 104, a song or other digital audio content from the play list is played by the media player 15 in the well-known manner. That is, the digital audio data is converted into audible sounds by the various components of the disc jockey client for perception by the user. Periodically, a check may be made at block 106 to determine if the song is over. If not, the media player continues to render the song. If the song is over, then a check may be made at block 108 to determine if the end of the play list has 20 been reached. If the end of the play list is reached, then processing ends at block 110.

If the end of the play list has not been reached, then processing continues with block 112. At block 112, it may be determined whether to play any selected content at this time (e.g., at the end of the song and before the start of the next 25 song in the play list). At block 114, the selected content may be obtained. The content may be obtained from either a local or remote source. At block 116, if any portion of the selected content is in a textual form, the text may be rendered or otherwise transformed into a digital audio form. In one embodiment, the transformation may be accomplished by text to speech function 22. At block 118, 30 the selected content may be distributed as digital audio information (e.g., MP3, WAV files) for presentation to the user. In one embodiment, the audio data may be processed by audio controller 24 and one or more speakers 22 in the

conventional manner. Blocks 112-118 may be repeated for a plurality of different content, depending on the contents of the user profile. When the selected content has been rendered, processing may continue with the next song in the play list at block 104.

5 In one embodiment, rather than multiplexing rendering of personalized information with rendering of songs, the personalized information may be mixed with the song so as to provide a "voice over." For example, the current time may be audibly rendered while a song is being played.

Figures 3 through 6 are example user interface diagrams according to an 10 embodiment of the present invention. Figure 3 illustrates a sample user interface for controlling a media player to play audio files (e.g., songs). The media player may include controls for conventional audio functions such as selection of play list or audio file, stop, play, fast forward, rewind, volume, etc. In this example, the disc jockey controller may be a plug-in or a shell that calls underlying media player 15 functions. Figure 4 illustrates a sample user interface for selecting song information to be rendered as selected content in between songs. For example, the user may select announcing of song titles between every song, every two songs, every three songs, or according to other criteria. In one example, the user interface may provide the user with selections of album title, song title, band 20 name, year recorded, and comments describing the song on the play list. Of course, these are merely examples that are not intended to limit the scope of the present invention. Various implementations of the present invention may include different information selections as discussed above. Figure 5 illustrates a sample user interface for selecting current stock quote information for rendering as 25 selected content. As shown in Figure 5, the disc jockey controller may allow the user to select various criteria for reporting stock information, such as which stocks to report, company name, stock symbol, price, percentage change in price, dollar amount change in price, as well as the frequency of reporting. Again, these are merely non-limiting examples of the types of information to be selected and 30 subsequently rendered by the media player. Figure 6 illustrates a sample user interface for selecting weather information for rendering as selected content. As can be seen, developers of the disc jockey server may provide many different

types of information for selection by a user. Each type of information may be associated with a user interface or web page for inputting the user's selection. The selections may be aggregated into the user profile for controlling the delivery of information to the user as described above.

5 In the preceding description, various aspects of the present invention have been described. For purposes of explanation, specific numbers, systems and configurations were set forth in order to provide a thorough understanding of the present invention. However, it is apparent to one skilled in the art having the benefit of this disclosure that the present invention may be practiced without the  
10 specific details. In other instances, well-known features were omitted or simplified in order not to obscure the present invention.

Embodiments of the present invention may be implemented in hardware or software, or a combination of both. However, embodiments of the invention may be implemented as computer programs executing on programmable systems  
15 comprising at least one processor, a data storage system (including volatile and non-volatile memory and/or storage elements), at least one input device, and at least one output device. Program code may be applied to input data to perform the functions described herein and generate output information. The output information may be applied to one or more output devices, in known fashion. For  
20 purposes of this application, a processing system embodying the playback device components includes any system that has a processor, such as, for example, a digital signal processor (DSP), a microcontroller, an application specific integrated circuit (ASIC), or a microprocessor.

The programs may be implemented in a high level procedural or object  
25 oriented programming language to communicate with a processing system. The programs may also be implemented in assembly or machine language, if desired. In fact, the invention is not limited in scope to any particular programming language. In any case, the language may be a compiled or interpreted language.

The programs may be stored on a removable storage media or device  
30 (e.g., floppy disk drive, read only memory (ROM), CD-ROM device, flash memory device, digital versatile disk (DVD), or other storage device) readable by a general or special purpose programmable processing system, for configuring and

operating the processing system when the storage media or device is read by the processing system to perform the procedures described herein. Embodiments of the invention may also be considered to be implemented as a machine-readable storage medium, configured for use with a processing system, where the storage 5 medium so configured causes the processing system to operate in a specific and predefined manner to perform the functions described herein.

An example of one such type of processing system is shown in Figure 7, however, other systems may also be used and not all components of the system shown are required for the present invention. Sample system 400 may be used, 10 for example, to execute the processing for embodiments of the personal disc jockey system, in accordance with the present invention, such as the embodiment described herein. Sample system 400 is representative of processing systems based on the PENTIUM® III, PENTIUM® 4 and CELERON® microprocessors available from Intel Corporation, although other systems (including personal 15 computers (PCs) having other microprocessors, engineering workstations, other set-top boxes, and the like) and architectures may also be used.

Figure 7 is a block diagram of a system 400 of one embodiment of the present invention. The system 400 includes a processor 402 that processes data signals. Processor 402 may be coupled to a processor bus 404 that transmits 20 data signals between processor 402 and other components in the system 400.

System 400 includes a memory 406. Memory 406 may store instructions and/or data represented by data signals that may be executed by processor 402. The instructions and/or data may comprise code for performing any and/or all of the techniques of the present invention. Memory 406 may also contain additional 25 software and/or data (not shown). A cache memory 408 may reside inside processor 402 that stores data signals stored in memory 406.

A bridge/memory controller 410 may be coupled to the processor bus 404 and memory 406. The bridge/memory controller 410 directs data signals between processor 402, memory 406, and other components in the system 400 and 30 bridges the data signals between processor bus 404, memory 406, and a first input/output (I/O) bus 412. In this embodiment, graphics controller 413 interfaces

to a display device (not shown) for displaying images rendered or otherwise processed by the graphics controller 413 to a user.

First I/O bus 412 may comprise a single bus or a combination of multiple buses. First I/O bus 412 provides communication links between components in system 400. A network controller 414 may be coupled to the first I/O bus 412. In some embodiments, a display device controller 416 may be coupled to the first I/O bus 412. The display device controller 416 allows coupling of a display device to system 400 and acts as an interface between a display device (not shown) and the system. The display device receives data signals from processor 402 through display device controller 416 and displays information contained in the data signals to a user of system 400.

A second I/O bus 420 may comprise a single bus or a combination of multiple buses. The second I/O bus 420 provides communication links between components in system 400. A data storage device 422 may be coupled to the second I/O bus 420. A keyboard interface 424 may be coupled to the second I/O bus 420. A user input interface 425 may be coupled to the second I/O bus 420. The user input interface may be coupled to a user input device, such as a remote control, mouse, joystick, or trackball, for example, to provide input data to the computer system. An audio controller 427 may be coupled to the second I/O bus for handling processing of audio signals through one or more loudspeakers (not shown in Figure 7). A bus bridge 428 couples first I/O bridge 412 to second I/O bridge 420.

Embodiments of the present invention are related to the use of the system 400 as a personal disc jockey server or client system. According to one embodiment, such processing may be performed by the system 400 in response to processor 402 executing sequences of instructions in memory 404. Such instructions may be read into memory 404 from another computer-readable medium, such as data storage device 422, or from another source via the network controller 414, for example. Execution of the sequences of instructions causes processor 402 to execute disc jockey processing according to embodiments of the present invention. In an alternative embodiment, hardware circuitry may be used in place of or in combination with software instructions to implement embodiments

of the present invention. Thus, the present invention is not limited to any specific combination of hardware circuitry and software.

The elements of system 400 perform their conventional functions in a manner well-known in the art. In particular, data storage device 422 (e.g., a DVD) 5 may be used to provide long-term storage for the executable instructions and data structures for embodiments of a disc jockey client or server system in accordance with the present invention, whereas memory 406 is used to store on a shorter term basis the executable instructions of embodiments of the disc jockey client or server system in accordance with the present invention during execution by 10 processor 402.

While this invention has been described with reference to illustrative embodiments, this description is not intended to be construed in a limiting sense. Various modifications of the illustrative embodiments, as well as other 15 embodiments of the invention, which are apparent to persons skilled in the art to which the inventions pertain are deemed to lie within the spirit and scope of the invention.

## CLAIMS

What is claimed is:

- 5        1. A method of automatically and audibly providing personalized information to a user during playback of digital audio data in a play list by an application program comprising:
  - obtaining selected information based at least in part on preferences determined by the user;
- 10      converting the selected information to digital audio data when the selected information is not in an audio data format; and
  - playing the selected information for listening by the user according to the user's preferences.
- 15      2. The method of claim 1, wherein the digital audio data comprises songs and playing the selected information comprises playing the selected information between playing of the songs.
- 20      3. The method of claim 1, wherein converting the selected information comprises converting the selected information from a textual format to a digital audio data format using a text to speech function.
- 25      4. The method of claim 1, wherein obtaining the selected information comprises obtaining the selected information locally from another application program.
5. The method of claim 4, wherein the selected information comprises at least one of electronic mail headers and appointment reminders.

6. The method of claim 1, wherein obtaining the selected information comprises obtaining the selected information remotely from at least one web site on the Internet.

5        7. The method of claim 6, wherein the selected information comprises at least one of current time, song information for songs in the play list, news headlines, stock quotes, sports scores and information, weather reports, concert information, and traffic reports.

10        8. The method of claim 1, wherein the preferences comprise at least one of type of information, time, frequency, and occurrence of an event.

15        9. The method of claim 1, wherein playing the selected information comprises playing the selected information concurrently with playing the digital audio data from the play list.

10. The method of claim 1, wherein the selected information comprises dynamic information available from a web site.

20        11. An article comprising: a storage medium having a plurality of machine readable instructions, wherein when the instructions are executed by a processor, the instructions provide for automatically and audibly providing personalized information to a user during playback of digital audio data in a play list by an application program by obtaining selected information based at least in part on preferences determined by the user, converting the selected information to digital audio data when the selected information is not in a digital audio data format, and playing the selected information for listening by the user according to the preferences.

30        12. The article of claim 11, wherein the digital audio data comprises songs and playing the selected information comprises playing the selected information between playing of the songs.

13. The article of claim 11, wherein instructions for converting the selected information comprise instructions for converting the selected information from a textual format to a digital audio data format using a text to speech function.

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14. The article of claim 11, wherein instructions for obtaining the selected information comprise instructions for obtaining the selected information locally from another application program.

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15. The article of claim 14, wherein the selected information comprises at least one of electronic mail headers and appointment reminders.

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16. The article of claim 11, wherein instructions for obtaining the selected information comprise instructions for obtaining the selected information remotely from at least one web site on the Internet.

20

17. The article of claim 16, wherein the selected information comprises at least one of current time, song information for songs in the play list, news headlines, stock quotes, sports scores and information, weather reports, concert information, and traffic reports.

25

18. The article of claim 11, wherein the preferences comprise at least one of type of information, time, frequency, and occurrence of an event.

30

19. The article of claim 11, wherein instructions for playing the selected information comprise instructions for playing the selected information concurrently with playing the digital audio data from the play list.

20. The article of claim 11, wherein the selected information comprises dynamic information available from a web site.

21. A system for automatically and audibly providing personalized information to a user during playback of digital audio data comprising:
  - an application program for playing digital audio data from a play list and the personalized information for listening by a user; and
- 5 a controller to obtain selected information based at least in part on preferences determined by the user and to convert the selected information to digital audio data when the selected information is not in a digital audio data format.
- 10 22. The system of claim 21, wherein the controller comprises a text to speech component to convert selected information in a text format to a digital audio data format.
- 15 23. The system of claim 21, wherein the application program comprises a media player.
24. The system of claim 23, wherein the media player comprises a MP3 player.
- 20 25. The system of claim 21, wherein the controller is coupled to the Internet and the controller obtains the selected information remotely from at least one web site on the Internet.
- 25 26. The system of claim 21, further comprising a networked appliance coupled to the controller for receiving and rendering the digital audio data from the play list and the personalized information for perception by the user.
- 30 27. The system of claim 21, wherein the digital audio data comprises songs and application program plays the selected information between playing of the songs.

28. The system of claim 21, further comprising a second application program and the controller obtains the selected information locally from the second application program.

5        29. The system of claim 28, wherein the second application program is an electronic mail program and the selected information comprises at least one of information describing electronic mail messages and appointment reminders.

10      30. The system of claim 21, wherein the selected information comprises at least one of current time, song information for songs in the play list, news headlines, stock quotes, sports scores and information, weather reports, concert information, and traffic reports.

15      31. The system of claim 21, wherein the preferences comprise at least one of type of information, time, frequency, and occurrence of an event.

20      32. The system of claim 21, wherein the application program plays the selected information concurrently with playing the digital audio data from the play list.

25      33. The system of claim 21, wherein the selected information comprises dynamic information available from a web site.

30      34. A personalized disc jockey system comprising:  
a server for distributing digital audio content, the server comprising:  
a user registration component to register a user and to build a user profile describing preferences for obtaining information of interest to the user;  
a content delivery scheduler to determine when personalized information is to be delivered based at least in part on the user profile; and  
a content aggregator to aggregate segments of personalized information from a plurality of sources; and

a client coupled to the server by a network for receiving and rendering digital audio content and the personalized information, the client comprising:

5            a media player for playing digital audio data from a play list and the personalized information received from the server for listening by a user; and

10            a controller to obtain the personalized information from the server based at least in part on preferences determined by the user and to convert the personalized information to digital audio data for playing by the media player when the personalized information is not in a digital audio data format.

35. The personalized disc jockey system of claim 34, wherein the digital audio data comprises songs and the media player plays the personalized information between playing of the songs.

15            36. The personalized disc jockey system of claim 34, wherein the personalized information comprises at least one of current time, song information for songs in the play list, news headlines, stock quotes, sports scores and information, weather reports, concert information, and traffic reports.

20            37. The personalized disc jockey system of claim 34, wherein the preferences comprise at least one of type of information, time, frequency, and occurrence of an event.

25            38. The personalized disc jockey system of claim 34, wherein the server obtains the personalized information from at least one of a content provider and an advertisement provider.

30            39. A method of automatically and audibly providing personalized information to a user during playback of digital audio data files in a play list by a media player application comprising:  
generating a profile of preferences of information for a user;

playing at least one digital audio file in a play list for listening by the user;  
automatically obtaining selected information from a remote location based  
at least in part on the preferences determined by the user;  
converting the selected information to digital audio data using a text to  
5 speech function when the selected information is not in an audio data format; and  
playing the selected information for listening by the user according to the  
preferences in between playing digital audio data files from the play list.

10 40. The method of claim 39, wherein the remote location comprises a web  
site accessible on the Internet.

15 41. The method of claim 39, wherein the selected information comprises at  
least one of current time, song information for digital audio data files in the play  
list, news headlines, stock quotes, sports scores and information, weather reports,  
concert information, and traffic reports.

42. The method of claim 39, wherein the preferences comprise at least  
one of type of information, time, frequency, and occurrence of an event.

20 43. An article comprising: a storage medium having a plurality of machine  
readable instructions, wherein when the instructions are executed by a processor,  
the instructions provide for automatically and audibly providing personalized  
information to a user during playback of digital audio data files in a play list by a  
media player application by generating a profile of preferences of information for a  
25 user; playing at least one digital audio file in a play list for listening by the user;  
automatically obtaining selected information from a remote location based at least  
in part on the preferences determined by the user; converting the selected  
information to digital audio data using a text to speech function when the selected  
information is not in an audio data format; and playing the selected information for  
30 listening by the user according to the preferences in between playing digital audio  
data files from the play list.

44. The article of claim 43, wherein the remote location comprises a web site accessible on the Internet.

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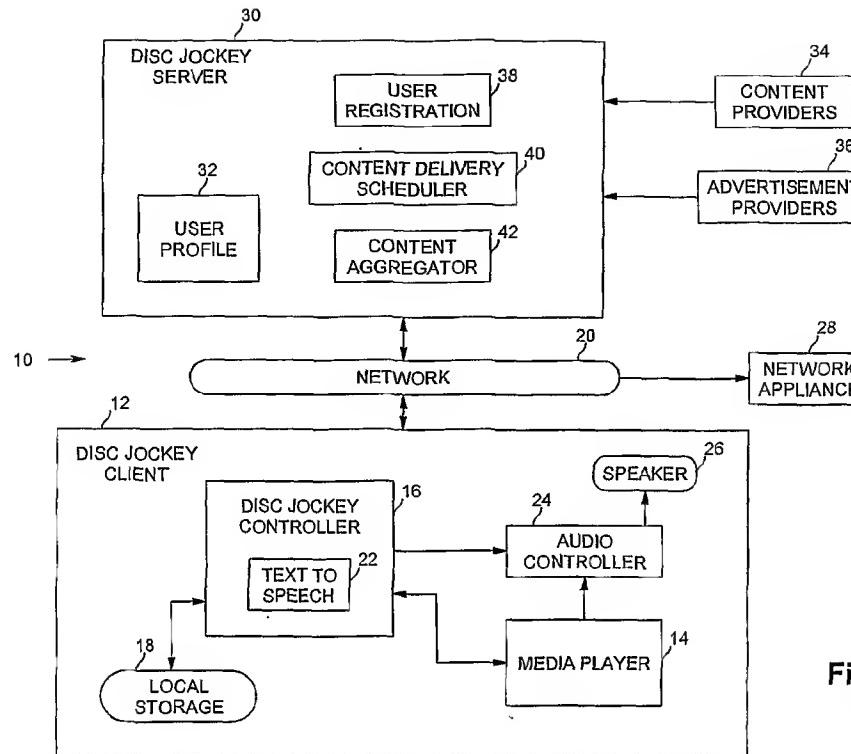


Figure 1

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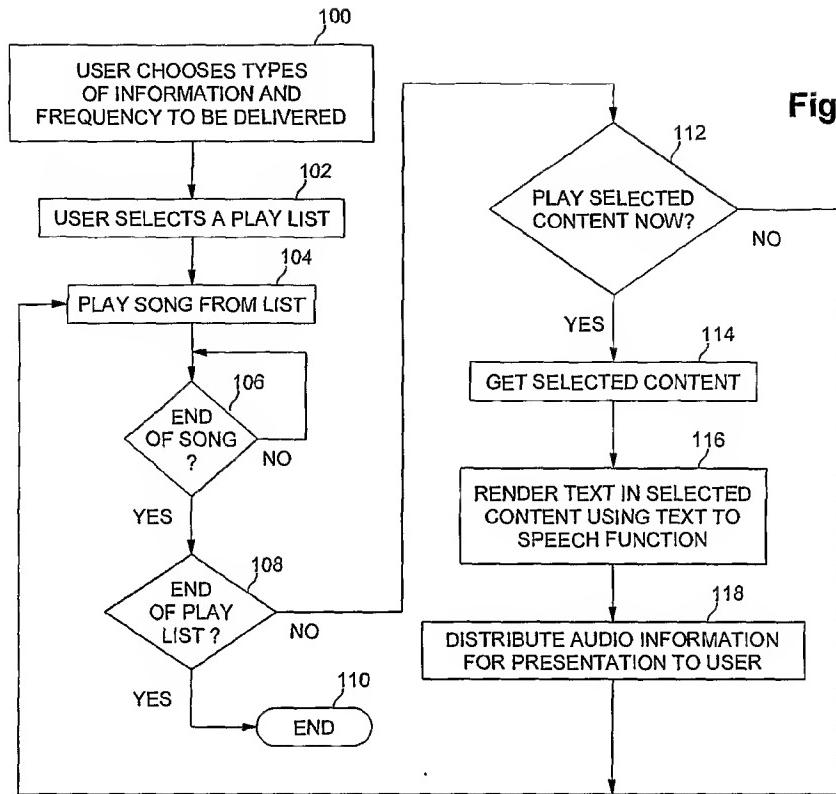
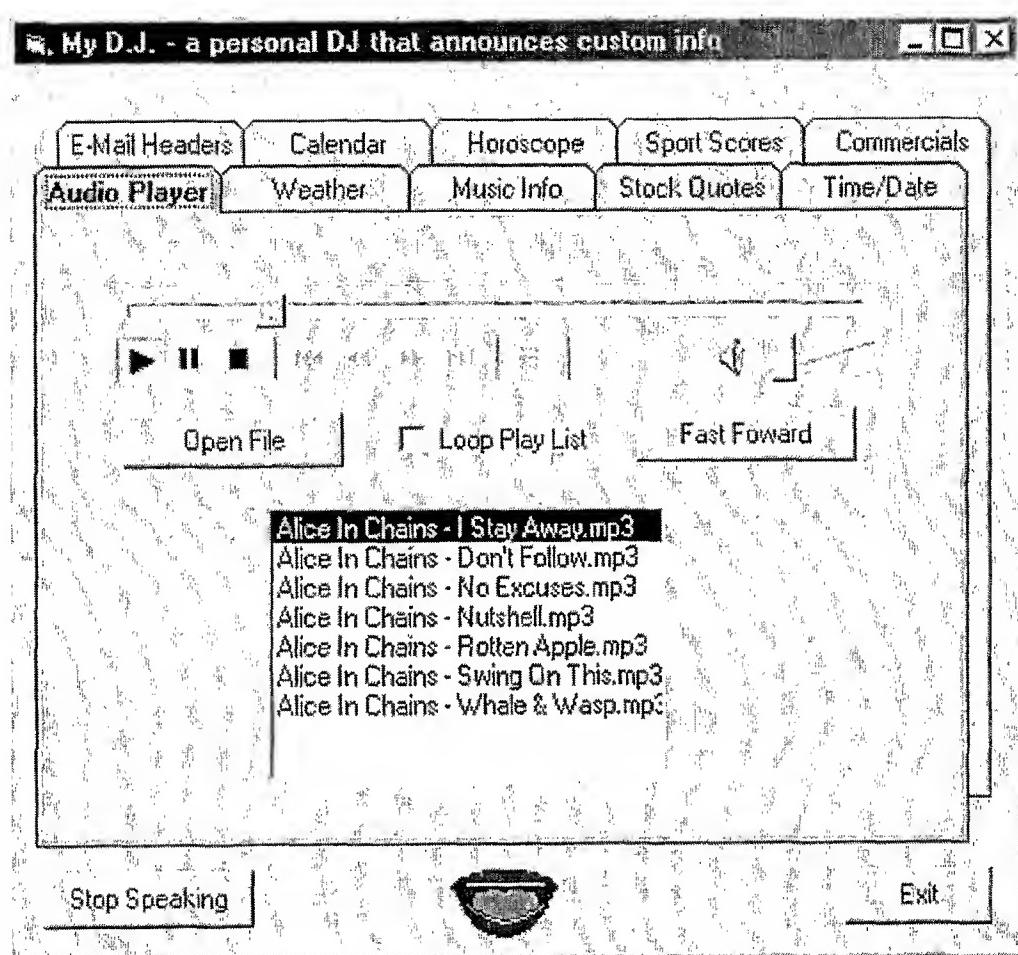


Figure 2

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Figure 3



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Figure 4

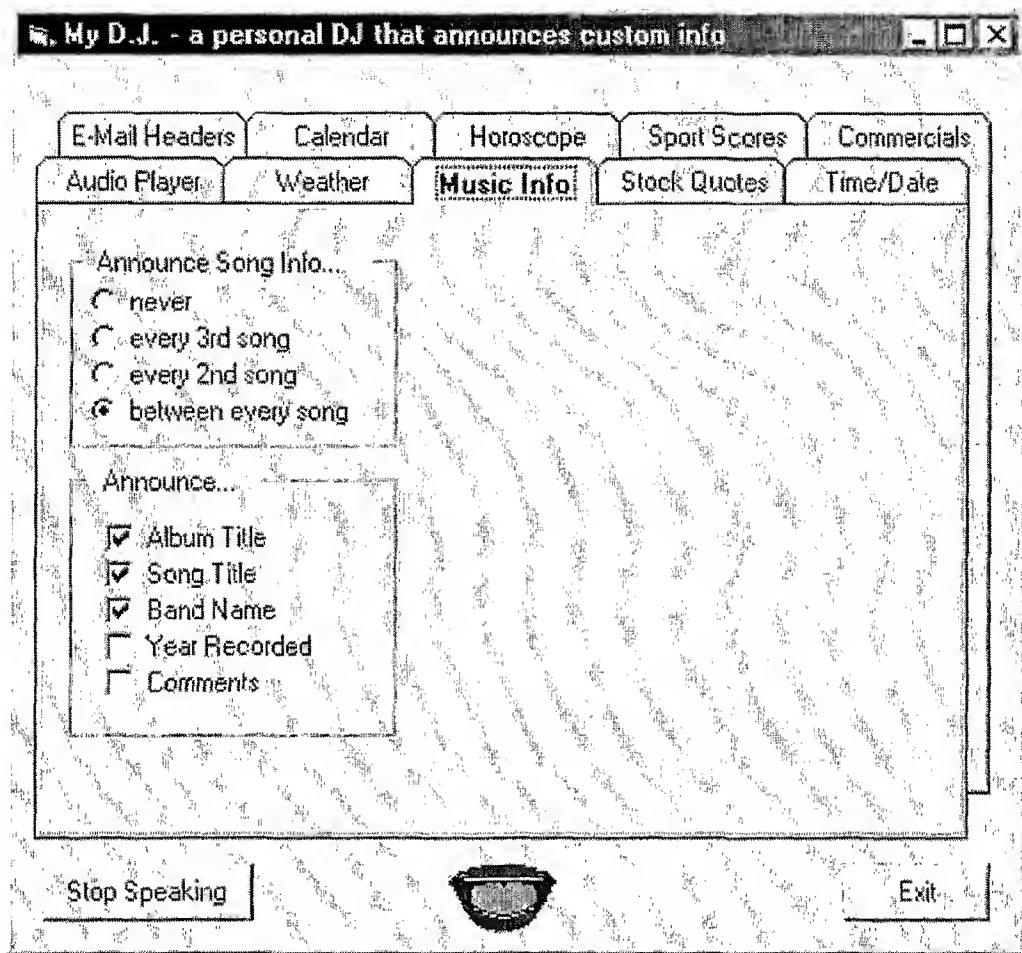
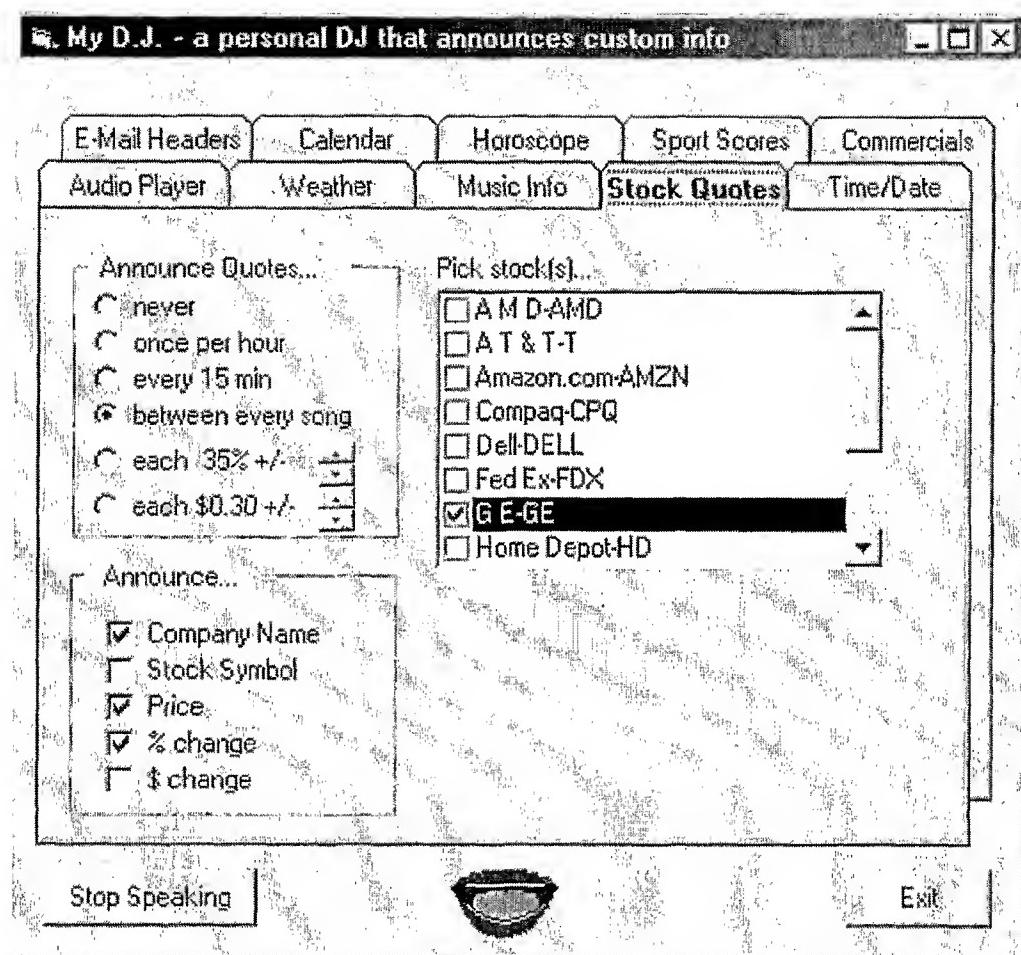
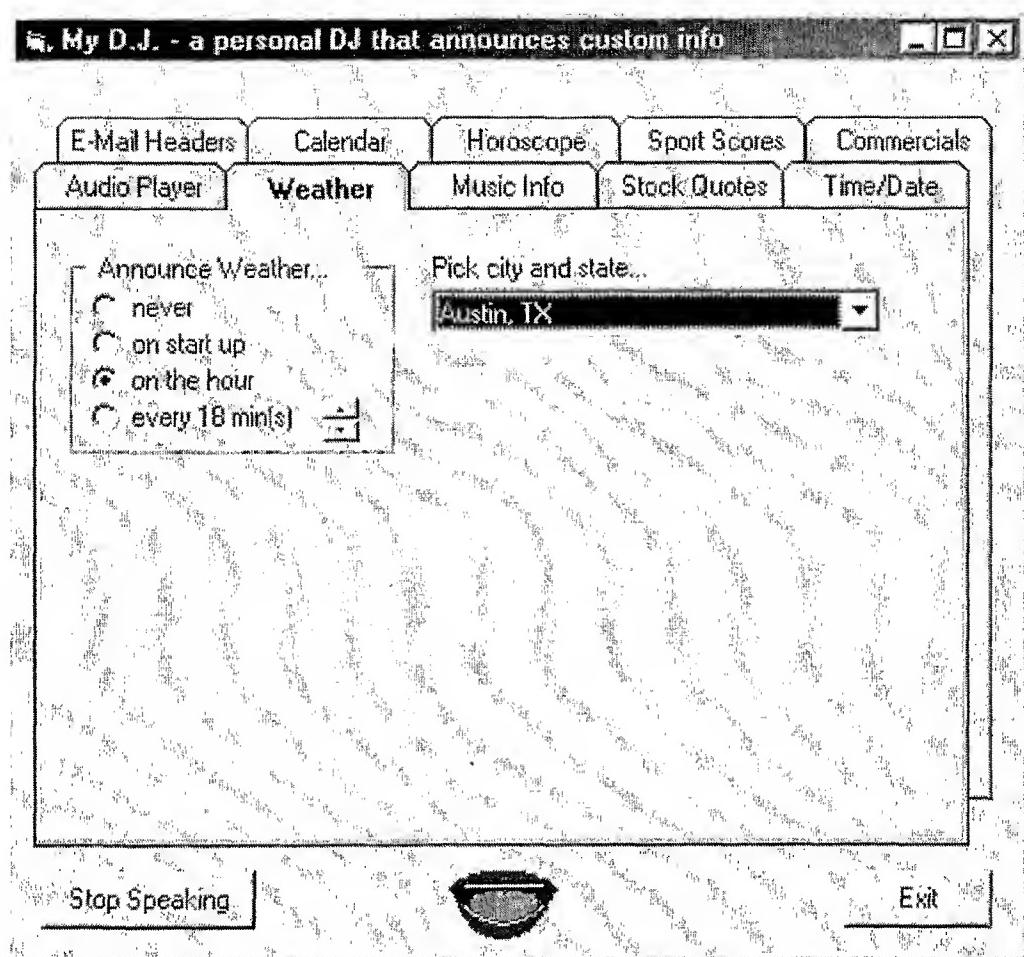


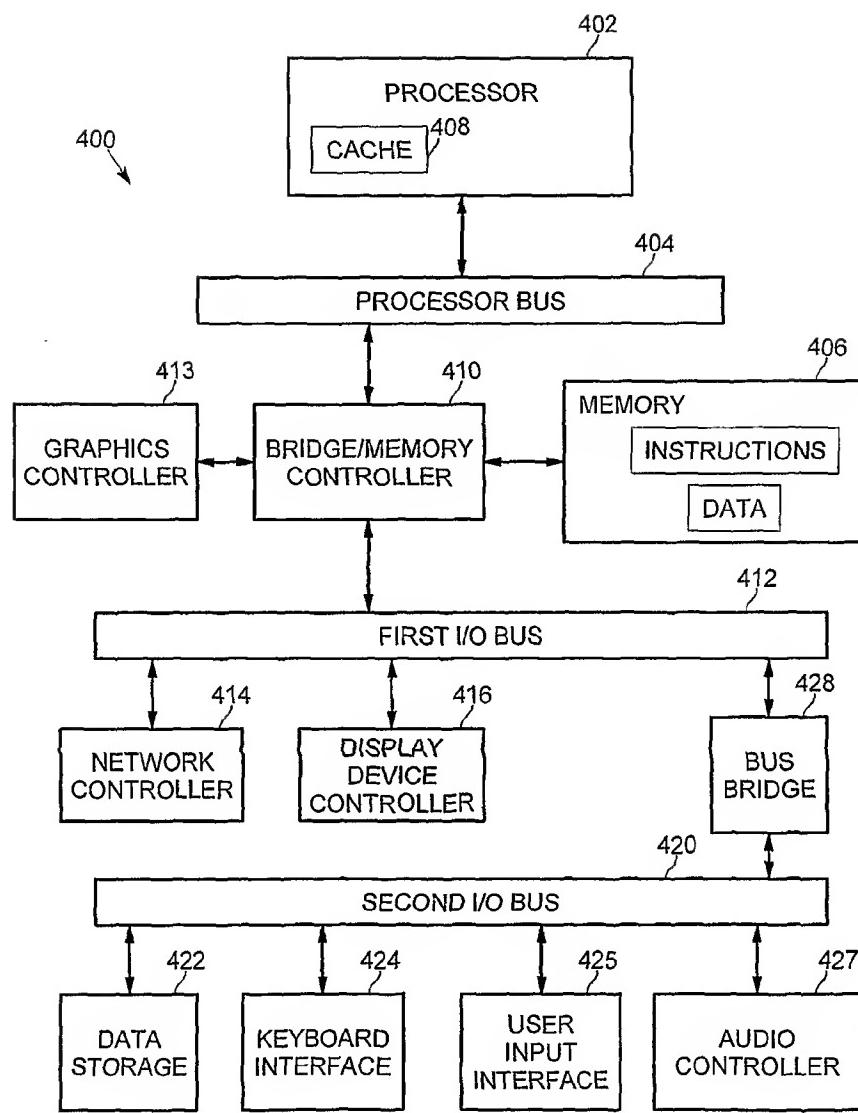
Figure 5



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Figure 6





**Figure 7**

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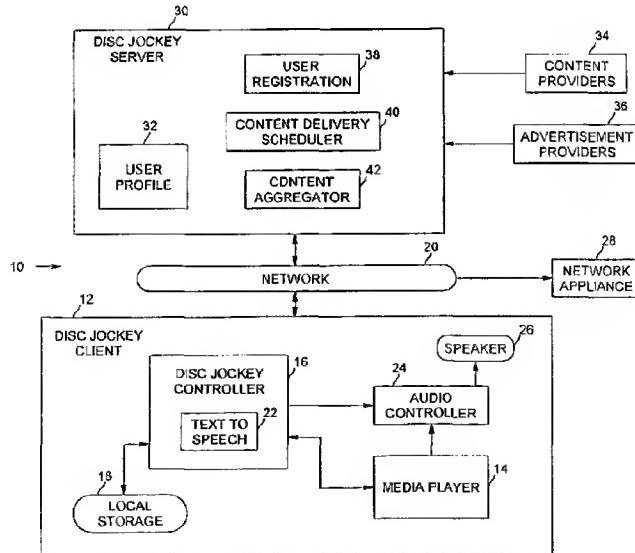
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[Continued on next page]

(54) Title: PERSONALIZED DISC JOCKEY SYSTEM



(57) **Abstract:** Automated insertion of personalized information content between segments of an audio program. The information may be based on user preferences and unique for the individual user. When a user is listening to a series of digital audio files being rendered by an audio player application according to a play list or in a streaming manner, the user may also receive other information based on the user's interests. The additional information may be rendered for the user in between the digital audio files (e.g., in between songs) or even as a "voice over" during a song. The additional information may be individually customized for the user based on a user-controlled profile or selected criteria. In one embodiment, the information may be obtained from various web sites on the internet based on the profile. If the additional information is received in a textual format (e.g., ASCII), the text may be converted into speech for audible rendering to the user.

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A. CLASSIFICATION OF SUBJECT MATTER  
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## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 915 238 A (TJADEN GARY S) 22 June 1999 (1999-06-22)  column 2, line 17 -column 3, line 52 column 5, line 9 - line 22 column 9, line 22 -column 10, line 17 column 12, line 8 - line 17; figures 1,3	1-3, 11-13, 21,22, 26,27, 39,43
A	----- -/-	6,7,10, 16,17, 20,25, 30,33, 40,41,44

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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